REVOX

Re:source

DVS-5 Module

Dominating Entertainment.
Revox of Switzerland.

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DVS Module

With the DVS Module, Revox is heralding a new era of picture reproduction. The DVD drive delivers the video data directly in a digital form to the **D**igital **V**ideo **S**caler module. Complex video processors calculate the output format and the settings that you have chosen. All unnecessary and lossy D/A and A/D conversions are dispensed with, as the DVS module receives the signals directly from the drive. This offers a significant advantage in comparison to external scalers.

The picture data is available on a digital format to HDMI-enabled devices, such as the Revox Re:ception **plasma 42 HD** device, through the HDMI* output.

ⓘ HDMI
High **D**efinition **M**ultimedia **I**nterface

ⓘ **Important: DVS-4 / DVS-5**
The **DVS-4** module and your current **DVS-5** module (Art. No. 1.551.054.05) can only be operated in conjunction with the **M51 MK2 (from SN 4000)** and it requires the **DVD-4** module.

But also devices that do not have a digital interface profit from the extraordinary quality of the DVS module. An analogue picture signal is available at the three cinch sockets, which was also generated through calculation algorithms, but then is output through a high-quality video DA converter as YCrCb or RGB, depending on your choice. Thus, you help analogue playback devices to achieve a previously unknown picture quality.

Installation

The DVS plug-in card is equipped with the latest in electronics and should be handled with care.

Before you install the card, the M51 must be switched off and separated from the power supply, by plugging the unit out.

The DVS module has its own plug-in position in slot 4 (the fourth plug-in card from the right when viewing the M51 from the back).

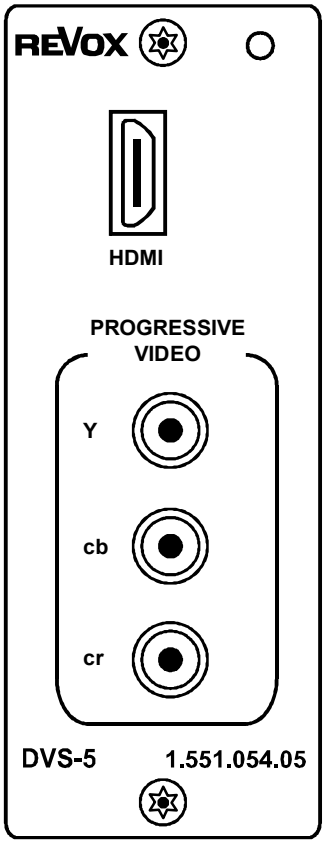
Loosen the two screws with the TORX TX9 screwdriver (M51 accessory) and remove the blanking plate.

Before removing the DVS module from its packaging, make sure that you are not charged with any static electricity. This could cause a damaging discharge of voltage when you touch the module. You should get rid of any static charge by touching an earthed metal object like a radiator, for example.

Remove the DVS module from its packaging and feed it into its plug-in position. The two bars inside the M51 are the mechanical guides for you to use. The lettering on the DVS plug-in card must be on top. Shortly before the plug-in card is fully locked into position in its slot, you will feel a clear mechanical resistance, caused by the M51 contact strip. Push the DVS module in by applying pressure in the area of the two screw holes and fix the card in place with both screws.

All further steps for registering the new module are carried out automatically by the M51 the next time it is switched on.

DVS Connection panel



HDMI Digital Output

Connect the HDMI interface on the M51 with a picture reproduction device that also has an HDMI interface. The DVS module also supports the HDCP copy protection.
In the case of devices that only have one DVI input, i.e. a digital interface only for picture data, you can alternatively establish a connection with an HDMI to DVI adapter cable. At the end of this manual, you will find the specialist terminology explained in the Multimedia Glossary.

Audio output through HDMI
The DVD module makes possible an output of digital audio signals in stereo. A change is necessary on the DVD module OSD menu for this purpose. Through the OSD, call the **Setup ↘ Audio ↘ Digital output** menu and select the **PCM only** setting.

Note
In the **PCM only** setting, the 5.1 Decoder module will also only be supplied with stereo data. A 5.1 multi-channel reproduction such as *Dolby Digital* or *dts* is then not possible.

You cannot use both outputs, i.e. HDMI and components output at the same time.

Y Cr Cb Analogue output

A color differential signal is behind the abbreviation Y Cr Cb, which handles three independent signal components physically separated from each other: one signal for the brightness **(Y)** and two for the color components **(Cr, Cb)**. All three signals are output to the corresponding sockets in full picture format (progressive).

Y : Luminance
C_r : Color difference Y-R
C_b : Color difference Y-B

The following signal assignment is to be noted in RGB mode:
Y : G – Green with sync
C_r : R - Red
C_b : B - Blue

Important:
Picture reproduction devices that cannot process the synchronisation signal out of the green signal, are not suitable for the reproduction.

The HDMI and components outputs cannot be used at the same time. The **DVD** module video signals are however available.

Note

The designation **Y U V** is also often used alongside **Y Cr Cb**. Both designations describe the video components signal.

DVS General

The DVS module has a particular position within the M51 modules. It is only there to prepare the DVD drive's digital picture data in such a way the connected picture reproduction devices can achieve an optimised picture result.

For this reason, no new source appears in the Source menu after installing the DVS module. There is just an additional Setup menu point in the DVD setup. You cannot operate a DVS module without a DVD module.

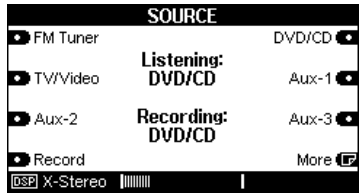
The digital video scaler form Revox has been optimised to work with HDMI-enabled Revox products. It can however, also support other devices.

An optimised picture can only be achieved with a Video DVD. Because of their data-reducing compression, Video or Super video CDs are not suited for producing optimised picture reproduction.

DVS Setup

All settings for the DVS module are done through the DVD Setup submenu.

To do this, select DVD from the Source menu. Press the **Source** key on the M51 and then select the **DVD/CD** source through the softkey.



After that, call the DVD setup by pressing the **Setup** key on the front of the **M51** for about 2 seconds and then selecting the **Source** softkey.

The following display appears:

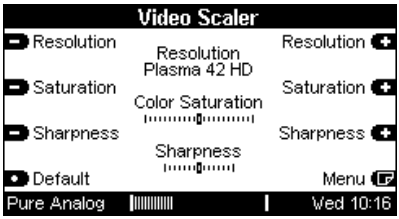
Using the **Scaler** softkey, you can modify the resolution and the output format of the video signal.

Scaler setup

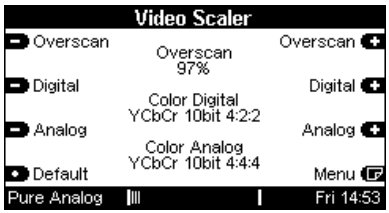
Scaler

The DVS module offers the most important picture parameter and basic settings on two pages. You can toggle between the two setup pages with the **menu** softkey.

Page 1 offers you the settings for resolution, saturation and sharpness.



Page 2 allows the adjustment of the picture size as well as the various output options for the digital HDMI and also for the analogue output.



Resolution

Resolution

With the **Resolution** softkey, you can adjust the resolution to achieve the best results for your picture reproduction device.

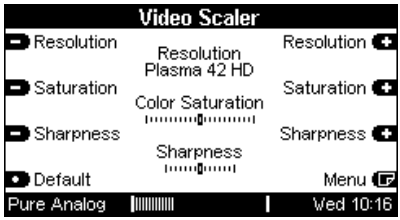
The optimised picture quality can only be achieved, when the digital picture signal corresponds to the actual native (optical) resolution of the plasma or LCD panel. That is to say when the pixel count in both the vertical and the horizontal match.

Many devices will accept a lower resolution but you sacrifice sharpness and details through scaling errors. If the picture signal has too high a resolution for the panel, this too high resolution value will be calculated downwards in the device, which also leads to visible interference and a resulting loss of sharpness, caused through scaling errors.

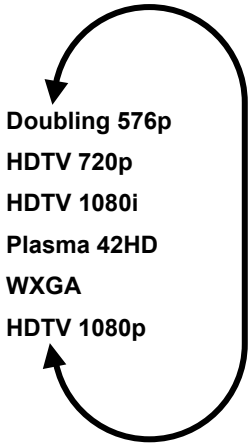
Resolution

Resolution

You can determine the predefined resolution version using the **Resolution** softkeys.



The following resolution options are available to you:



Doubling 576p
offers a resolution with 576 lines with 720 pixels per line, which are output in full pictures (p = progressive).

HDTV 720p
offers a resolution with 720 lines with 1280 pixels per line, which are output in full pictures (p = progressive). This 720 x 1280 pixel resolution corresponds to the HDTV norm.

HDTV 1080i
offers a resolution with 1080 lines with 1920 pixels per line, which are output in half pictures (i = interlaced).
This 1080 x 1920 pixel resolution corresponds to the HDTV norm.

Plasma 42 HD
Optimised resolution for the Revox **Plasma 42 HD**. The XGA resolution of 1024 x 768 pixels corresponds to the native resolution of the Revox **Plasma 42 HD**. Output is done progressively, i.e. in full pictures. You should use an HDMI to DVI adapter cable to the Revox Plasma.

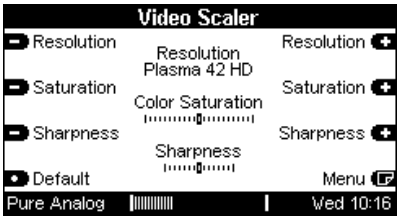
WXGA
offers a resolution with 768 lines with 1366 pixels per line, which are output in full pictures (progressive).

HDTV 1080p
offers a resolution with 1080 lines with 1920 pixels per line, which are output in full pictures (p = progressive). This 1080 x 1920 pixel resolution corresponds to the HDTV norm.

Saturation

Saturation

You can define the color saturation using the **Saturation** softkeys.



A shift from the neutral central position towards the positive range strengthens the color saturation, giving you stronger colors.
A shift towards the negative range on the other hand, means that the colors appear paler and less strongly.

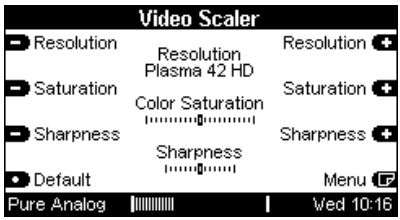
The selected setting is retained until you make a new setting or until you reset the settings on this page back to the neutral central position with the **Default** softkey.

The setting range has very fine scaling and can best be set using a Video test DVD.

Sharpness

Sharpness

You can define the sharpness of the picture using the **Sharpness** softkeys.



A shift from the neutral central position towards the positive range increases the sharpness effect. The picture becomes richer in detail. If the setting is too high, the picture can even become a bit “grainy”.

A shift towards the negative range on the other hand, leads to a less sharp image. In the case of “grainy” films, this can lead to a better result.

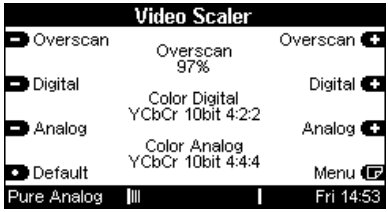
The selected setting is retained until you make a new setting or until you reset the settings on this page back to the neutral central position with the **Default** softkey.

The setting range has very fine scaling and can best be set using a Video test DVD.

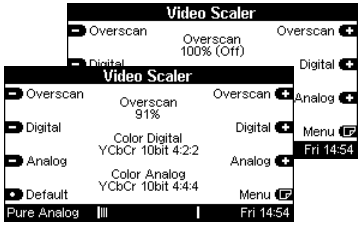
Overscan

Overscan

The size of the image displayed on the panel can be defined through the **Overscan** softkeys.



The range from 91% to 100% is available.



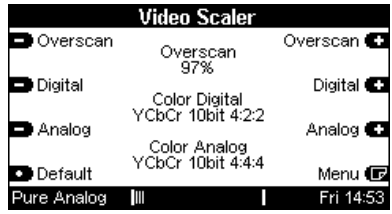
A reduction of the displayed image size is recommended if unclear image seams are visible at the upper or lower margins. This is also known as “pixel cropping”. In many cases, the cause of the problem lies with DVDs that were not mastered in full format.

The selected setting is retained until you make a new setting or until you reset the settings on this page back to the factory settings with the **Default** softkey.

HDMI output Color Digital

Digital

You can define the output format of the **HDMI** output through the **Digital** softkeys.



Three output formats are available to you:

YCbCr 10 bit 4:2:2
Output as color differential signal with the luminance part Y and the two color components Cr and Cb with a quantisation of 10 bit. In this case, the luminance signal is output with a scanning frequency of 13.5 MHz (**4** x 3.375 MHz) and the color signals are output each with a scanning frequency of 6.25 MHZ (**2** x 3.375 MHz)

YCrCb 8 bit 4:4:4
Output as color differential signal with the luminance part Y and the two color components Cr and Cb with a quantisation of 8 bit. All signal components are output with a scanning frequency of 13.5 MHz (**4** x 3.375 MHz).

HDMI output: Color Digital

Digital

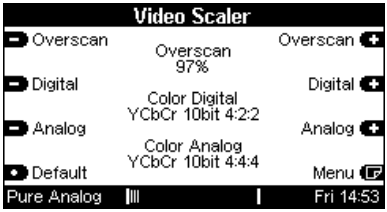
RGB 8 bit 4:4:4
Output as color signal with the three primary colors red **R**, green **G** and blue **B**, with a quantisation of 8 bit.

All three primary colors are output with a scanning frequency of 13.5 MHz (**4** x 3.375 MHz).

Analog output: Color Analog

Analog

You can define the output format of the analogue component output through the **Analog** softkeys.



Two different output formats are available to you:

YCbCr 10 bit 4:4:4
Output as analogue color signal, which is converted with an accuracy of 10 bit. All signal components are output with a scanning frequency of 13.5 MHz (**4** x 3.375 MHz).

RGsB 10 bit 4:4:4
Output as color signal with the three primary colors red **R**, green **G** and blue **B**, which is converted with an accuracy of 10 bit.
All three primary colors are output with a scanning frequency of 13.5 MHz (**4** x 3.375 MHz).
The synchronisation signal is contained in the primary color green.

Multimedia glossary

Bit
Bit is the abbreviation for **B**inary dig**it**. A Bit can only have the value 1 (on or true) or 0 (off or false). 8 bits make up a byte and can represent 2^8 = 256 values. 10 bit therefore, can represent 2^{10} = 1024 values.

Chrominance
The color information of a video signal, including hue and saturation, but not brightness (luminance). Neutral colors (grey tones) don't have any chrominance. All colors however, are made up of a combination of luminance and chrominance.

DA converter
This is an abbreviation for a digital to analogue converter, also known as a DAC. This is an electronic device that is used to convert digital signals into analogue signals.

DVI
Digital **V**isual **I**nterface. The picture signal is no longer transmitted as analogue but digitally. As HDTV can only transmit digitally, you have to have a DVI or HDMI connection. You also profit from a digital transfer even when connecting a PC.

HDCP
Modern digital video interfaces (DVI, HDMI) are equipped with a copy protection system "**H**igh Bandwidth **D**igital **C**ontent **P**rotection".
The correct function of this interface is only guaranteed if the HDCP process is used at both of the devices connected by DVI / HDMI (DVD, HDTV receiver/decoder, Flat screen / Beamer).

HDMI
In comparison to the DVI, the **H**igh **D**efinition **M**ultimedia **I**nterface offers the advantage of **audio** transmission with a 19-pin miniature plug. HDMI does not have any data compression. All picture formats, including HDTV 1080p, as well as up to 8 audio channels are transferred uncompressed. At the same time, HDMI is downwardly compatible with DVI. This means that a DVI output can be connected with an HDMI input using a suitable cable.

HDTV
High **D**efinition **TV** offers an enhanced picture resolution. The possibilities are 720 or 1080 lines. The maximum resolution is 1080i (interlaced 1920 x 1080 pixels). In comparison to the conventional, analogue PAL process, 1080i has about a 5-fold higher resolution. HDTV is a purely 16:9 picture format. 4:3 formats are shown with black margins, top and bottom.

Luminance
Luminance is the brightness component of a color, which is independent of the color itself. It is possible to display the luminance without chrominance (color components). It is however not possible to show a color without luminance.

Technical data

Output formats

- YCrCb
- RGsB

Resolutions

• 720 x 576	Progressive	Doubling 576p
• 1280 x 720	Progressive	720p
• 1920 x 1080	Interlaced	1080i
• 1024 x 768	Progressive	XGA
• 1366 x 768	Progressive	WXGA
• 1920 x 1080	Progressive	1080p

Note

“High-Definition Multimedia Interface" and "HDMI" are registered trademarks of HDMI Licensing, LLC.

Guarantee

The guarantee period is 24 months.

Your dealer should be your first contact if you need service.

If he can't give you the help you need, send the DVS module carriage free and without any accessories to your national Sales Office.

Please supply a complete description of the fault together with your address.